

Simplify

1) $\sqrt{-16}$
 $(4i)$

2) $\sqrt{-13}$
 $(i\sqrt{13})$

3) $5i^2$
 $5(-1)$
 (-5)

4) $(5i)^2$
 $25i^2$
 $25(-1)$
 (-25)

5) $(3x+5)(2x-7)$

$6x^2 - 21x + 10x - 35$
 $(6x^2 - 11x - 35)$

6) $(4+3i)(2-5i)$

$8 - 20i + 6i - 15i^2$
 $8 + 15 - 14i$
 $(23 - 14i)$

7) $\frac{x^3 + 2x^2 - 10x + 25}{x^2 - 3x + 5}$

	x^2	$-3x$	$+5$
x	x^3	$-3x^2$	$+5x$
5	$5x^2$	$-15x$	25

 $x^3 + 2x^2 - 10x + 25$

Write an equation for a quadratic function in standard form that has the following as intercepts.

8) $(-7, 0)$ and $(5, 0)$

$y = (x+7)(x-5)$
 $y = x^2 - 5x + 7x - 35$

$y = x^2 + 2x - 35$

For each equation find two solutions $0^\circ \leq \theta < 360^\circ$, which make the equation true.

9) $\tan \theta = \sqrt{3}$

$\tan^{-1}(\sqrt{3})$
 $(\theta = 60^\circ, 240^\circ)$

10) $\sin \theta = \frac{\sqrt{3}}{2}$

$\sin^{-1}(\sqrt{3}/2)$
 $(\theta = 60^\circ, 120^\circ)$

11) $\cos \theta = -\frac{1}{2}$

$(\theta = 120^\circ, 240^\circ)$

Chapter 10

A card is drawn from a standard 52 card deck. Find the probability of each event for one draw.

12. A 5 $\frac{4/52 = 1/13}$

13. 3 of clubs $\frac{1}{52}$

14. A king or a face card $\frac{12/52 = 3/13}$

A box contains 4 red marbles, 5 black marbles, and 7 blue marbles. Find the probability of selecting each combination.

15. 3 blue 9.7%
 $\frac{{}^7C_3}{{}^{16}C_3} = \frac{35}{560}$

16. 1 red and 2 black 7.1%
 $\frac{{}^4C_1 \cdot {}^5C_2}{{}^{16}C_3} = \frac{40}{560}$

17. The local news has 7 stories to air tonight, in how many different orders can the 7 reports be played?

5040

$7P_7$

18. A baseball team needs 5 more players. Twelve players try out for the team. In how many ways can 5 players be selected?

$$\underline{792} \quad 12C_5$$

19. A pizzeria has 4 meat toppings and 3 vegetable toppings. In how many different ways can a pizza be ordered with 3 meat toppings and 2 vegetable toppings?

$$4C_3 \cdot 3C_2 \quad \underline{12}$$

20. A car dealer receives 8 new cars. How many ways can the 8 cars be arranged if there are only 5 spots in the showroom?

$$\underline{6720} \quad 8P_5$$

21. A sofa comes in 5 colors, 3 sizes, and 4 different fabrics. How many different ways can the sofa be ordered?

$$\underline{60} \quad 5 \cdot 3 \cdot 4$$

22. The Twins sell partial season tickets where you can pick 15 games from 20. How many ways can the tickets be ordered?

$$\underline{15,504} \quad 20C_{15}$$

23. Our school has 3 job openings, one at the high school, one at Westwood, and one in LA. Seven people qualified for all 3 positions apply. In how many ways can the positions be filled?

$$7P_3 \quad \underline{210}$$

24. A supermarket has 2 job openings in the bakery. Eight people who are qualified apply. In how many ways can the positions be filled?

$$\underline{28} \quad 8C_2$$

25. The password for a computer needs to be 3 letters followed by 2 digits. How many passwords are possible?

$$\underline{26 \cdot 26 \cdot 26 \cdot 10 \cdot 10} \quad \underline{1757,600}$$

26. How many are possible if you do not repeat any letters or numbers? 1,404,000

$$\underline{26 \cdot 25 \cdot 24 \cdot 10 \cdot 9}$$

Solve the following equations.

27. $\log_5(x-4) = 2$

$$\begin{aligned} 5^2 &= x-4 \\ 25 &= x-4 \\ x &= 29 \end{aligned}$$

28. $7 + (x+5)^2 = 23$

$$\begin{aligned} (x+5)^2 &= 16 \\ x+5 &= 4 \quad -4 \\ x &= -1 \text{ or } -9 \end{aligned}$$

29. $3^x = 125$

$$\begin{aligned} \log_3 125 &= x \\ x &= 4.39 \end{aligned}$$

30. $4(2x-5) = 28$

$$\begin{aligned} 2x-5 &= 7 \\ 2x &= 12 \\ x &= 6 \end{aligned}$$

31. $-2x^3 = -54$

$$\begin{aligned} \sqrt[3]{x^3} &= \sqrt[3]{27} \\ x &= 3 \end{aligned}$$

32. $x^2 - 3x - 40 = 0$

$$\begin{aligned} (x-8)(x+5) &= 0 \\ x &= 8 \quad x = -5 \end{aligned}$$